



NTSB National Transportation Safety Board

Office of Aviation Safety

Flight Crew Performance: Human Factors

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Human Performance Group
Chairman



Wayfinding

- Multiple sources of information used to navigate airport surfaces
 - Knowledge of standard airport features and marking standards
 - Airport charts
 - Taxi instructions
- Pilots experienced
- Straightforward taxi

Supporting Cues and Aids

- External cues on airport surface
 - Taxiway signs
 - Holding position signs
 - Runway markings
- Aids in cockpit
 - Heading bugs
 - Airport diagram
 - Communications with controller
- Cues and aids should have enabled successful navigation to runway 22

Actions During Taxi

- No evidence of time pressure
- Noncompliance with sterile cockpit rule
- Distraction likely contributed to loss of positional awareness



Confirmation Bias

- Allows mistaken perception to persist
- Tendency to see features that support perception
- Less emphasis on contradictory information

Crew Performance

- Performance was uncharacteristic
- Favorably assessed by others
- Made other errors

Crew Performance

- Role of fatigue
 - 6 to 7 hours available sleep time; early awakening
 - Insufficient evidence to determine if fatigue affected performance

Crew Performance

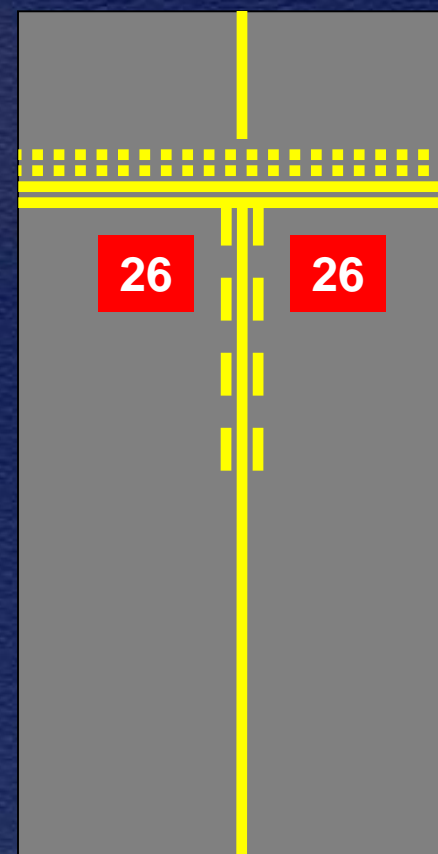
- Cockpit discipline
 - Breakdown in adherence to standard operating procedures
 - Research shows increased risk for subsequent error

Prevention

- Other accidents and incidents demonstrate pilots vulnerable to surface navigation errors
- Need to cross-check and confirm position

Prevention

- Enhanced taxiway centerline markings
- Surface painted holding position signs

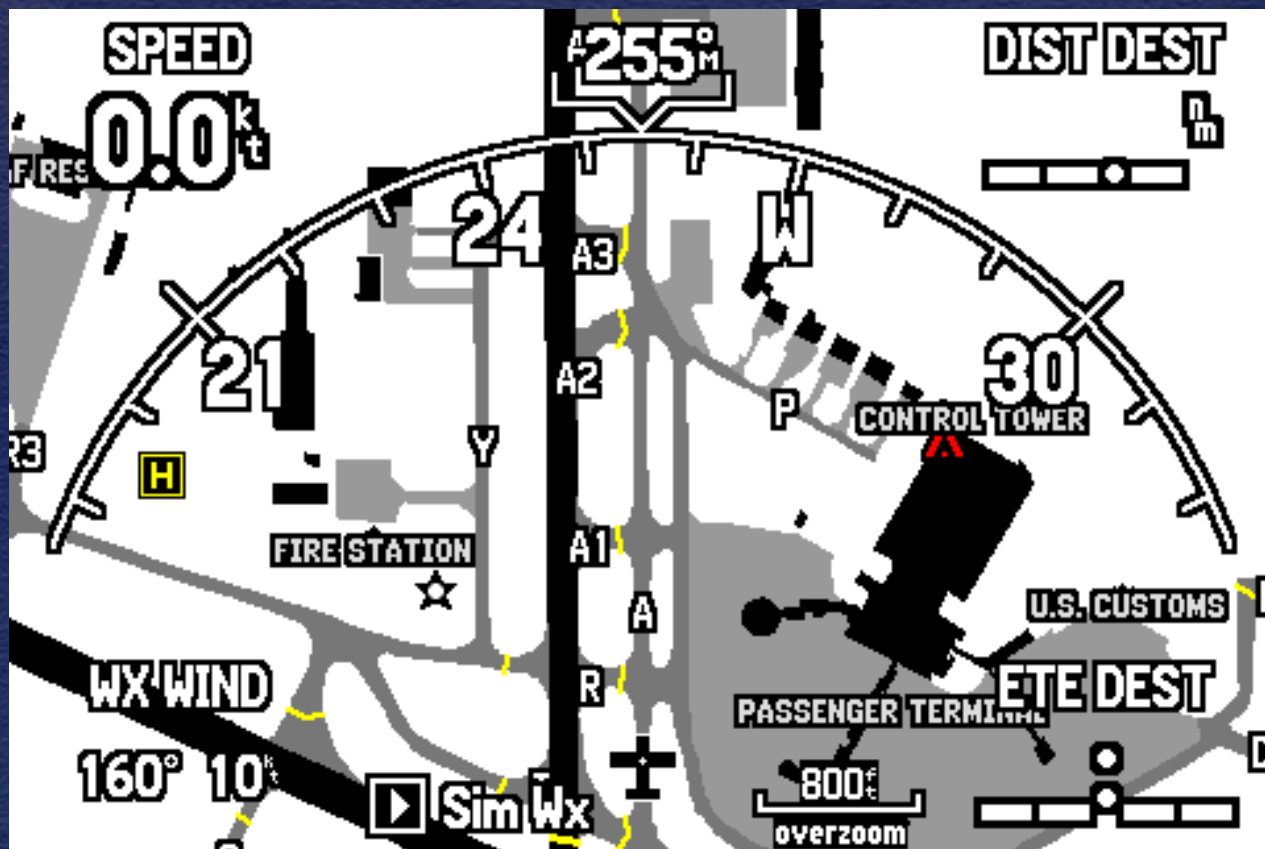


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Prevention

- Moving map displays and cockpit runway alerting systems





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